Amendments to the Claims:

> This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A process for generating an MPEG output bitstream from an MPEG input bitstream having a first resolution, said MPEG output bitstream having a second resolution modified with respect to the first resolution of said MPEG input bitstream, the process comprising the operations of:

distinguishing, in said MPEG input bitstream, first portions that substantially do not affect and second portions that substantially do affect variation of the resolution of the MPEG output bitstream;

subjecting said second portions of the input bitstream to an inverse-quantization operation to obtain inverse-quantized second portions of the first resolution;

subjecting said inverse-quantized second portions of the first resolution to motion compensation in a DCT domain to obtain motion-compensated second portions of the first resolution;

subjecting said motion-compensated second portions of the MPEG input bitstream to a first operation function of modification of the resolution obtained by filtering said motion-compensated second portions in a discrete cosine transform domain to obtain resolution-modified second portions in the second resolution;

transferring said second portions to said output bitstream;

subjecting said second portions of the input bitstream to an inverse-quantization operation and to a motion compensation operation; and

applying to motion vectors associated with said input bitstream a transformation that correlates the motion vectors to a number of motion vectors associated with at least one of a plurality of macroblocks of said output bitstream, wherein said transformation applied to the motion vectors associated with said input bitstream includes:

~~multiplying said motion vectors by respective weighting factors;~~

~~accumulating the results of the above multiplication; and~~

~~dividing the results accumulated by the sum of said weighting factors.~~

2.   (Currently Amended) The process according to claim 1, further comprising ~~an operation of~~ subjecting said <u>resolution-modified</u> second portions ~~that have undergone filtering in the domain of the discrete cosine transform~~ to an inverse discrete cosine transform function to generate decompressed data with modified resolution that are perceptible during generation of said output bitstream with modified resolution.

3.   (Original) The process according to claim 1 wherein said filtering said second portions in the domain of the discrete cosine transform is performed with selectively variable coefficients.

4.   (Original) The process according to claim 3 wherein said selectively variable coefficients are configured to be selectively variable during generation of said output bitstream with modified resolution.

5.   (Canceled)

6.   (Currently Amended) The process according to claim 1, further comprising subjecting said second portions of the input bitstream to an inverse VLC function prior to said inverse-quantization operation ~~is performed~~.

7.   (Currently Amended) The process according to claim 1, further comprising the operation of storing said <u>resolution-modified</u> second portions ~~of the input bitstream subjected to motion compensation with a resolution corresponding to the modified resolution of said output bitstream~~.

8.   (Currently Amended) The process according to claim 7, further comprising the operations of:

~~carrying out said motion compensation by operating on said second portions of the input bitstream subjected to inverse quantization with a first resolution corresponding to the resolution of said input bitstream;~~

~~subjecting said data that have undergone motion compensation to a first operation of modification of said first resolution into a second resolution corresponding to the resolution of said output bitstream;~~

~~storing said data subjected to motion compensation with said second resolution;~~ ~~and~~

generating prediction data for said motion compensation starting from the resolution-modified second portions ~~data~~ stored with said second resolution by subjecting the stored resolution-modified second portions ~~data~~ to a second operation of modification of the resolution that brings back the resolution of the stored data from said second resolution to said first resolution.

9.   (Original) The process according to claim 8 wherein said second resolution is a resolution lower than said first definition.

10.   (Original) The process according to claim 1 wherein said filtering operation in the domain of the discrete cosine transform includes the operations of:

storing a given number of macroblocks aligned on one and the same line; and

multiplying said macroblocks by at least one matrix with a scaled factor of definition.

11.   (Currently Amended) The process according to claim 10, wherein said given number of aligned macroblocks are aligned on one and the same horizontal line, and ~~in~~ ~~that~~ said definition factor is scaled in the horizontal direction.

12. (Currently Amended) The process according claim 10 wherein said given number of aligned macroblocks are aligned on one and the same vertical line, and ~~in that~~ said definition factor is scaled in the vertical direction.

13. (Currently Amended) The process according to ~~claims~~ claim 10, further comprising the operation of storing both a given number of macroblocks aligned on a horizontal line and a given number of macroblocks aligned on a vertical line, so that said definition factor is scaled both in the horizontal direction and in the vertical direction.

14. (Currently Amended) The process according to ~~any one of claims~~ claim 10 wherein said given number of macroblocks comprises at least three macroblocks.

15. (Currently Amended) A system for generating an MPEG output bitstream starting from an MPEG input bitstream having a first resolution, said MPEG output bitstream having a second resolution modified with respect to the first resolution of said MPEG input bitstream, the system comprising:

a sorting module configured to distinguish, in said input bitstream, first portions that substantially do not affect and second portions that substantially do affect variation of resolution of the MPEG output bitstream; and

an inverse quantizer module structured to subject said second portions of the input bitstream to an inverse-quantization operation to obtain inverse-quantized second portions of the first resolution;

a motion compensation module structured to subject said inverse-quantized second portions of the first resolution to motion compensation in a DCT domain to obtain motion-compensated second portions of the first resolution;

at least one processing module configured to subject said motion-compensated second portions ~~of the input bitstream~~ to a function of modification of the resolution obtained by filtering said motion-compensated second portions in ~~a domain of a~~ the discrete cosine transform domain to obtain resolution-modified second portions in the second resolution, ~~the at least one~~

~~processing module further configured to transfer, to said output bitstream, said second portions subjected to filtering in the domain of the discrete cosine transform, wherein said at least one processing module is further configured to perform on said second portions of the input bitstream, an inverse-quantization operation and a motion compensation operation, and wherein said at least one processing module includes means for applying to motion vectors associated with said input bitstream a transformation that correlates the motion vectors to a number of motion vectors associated with at least one of a plurality of macroblocks of said output bitstream, wherein said transformation applied to the motion vectors associated with said input bitstream includes:~~

~~multiplying said motion vectors by respective weighting factors;~~

~~accumulating the results of the above multiplication; and~~

~~dividing the results accumulated by the sum of said weighting factors.~~

16.   (Currently Amended) The system according to claim 15, further comprising an inverse-transform module configured to subject said <u>resolution-modified</u> second portions ~~that have undergone filtering in the domain of the discrete cosine transform~~ to an inverse discrete cosine transform function to generate decompressed data with modified resolution that are perceptible during generation of said output bitstream with modified resolution.

17.   (Original) The system according to claim 15 wherein said at least one processing module performs said operation of change of resolution via filtering in the domain of the discrete cosine transform with selectively variable coefficients.

18.   (Original) The system according to claim 17 wherein said at least one processing module is configured in such a way that said coefficients are selectively variable during generation of said output bitstream with modified resolution.

19.   (Canceled)

20.   (Currently Amended) The system according to claim 15, further comprising an inverse VLC module ~~wherein said at least one processing module is further~~ configured to subject said second portions of the input bitstream to an inverse VLC function prior to the inverse quantizer module performing said inverse quantization operation.

21.   (Currently Amended) The system according to claim 15, further comprising at least one storage module configured to store said resolution-modified second portions ~~of the input bitstream subjected to motion compensation with a resolution corresponding to the modified resolution of said output bitstream~~.

22.   (Currently Amended) The system according to claim 21, further comprising ~~wherein said at least one processing module is further configured to~~:

~~execute said motion compensation by operating on said second portions of the input bitstream subjected to inverse quantization with a first resolution corresponding to the resolution of said input bitstream;~~

~~subject said data that have undergone motion compensation to a first operation of modification of said first resolution into a second resolution corresponding to the resolution of said output bitstream;~~

~~store said data subjected to motion compensation with said second resolution; and~~

an upsample filter configured to generate prediction data for said motion compensation starting from the ~~data~~ stored resolution-modified second portions ~~with said second resolution~~ by subjecting the stored data to a second operation of modification of the resolution that brings back the resolution of the stored resolution-modified second portions ~~data~~ from said second resolution to said first resolution.

23.   (Original) The system according to claim 22 wherein said second resolution is a resolution lower than said first resolution.

24. (Original) The system according to claim 15 wherein said at least one processing module is further configured to:

store a given number of macroblocks aligned on one and the same line; and

multiply said macroblocks by at least one matrix with a scaled factor of definition.

25. (Original) The system according to claim 24 wherein said given number of aligned macroblocks are aligned on one and the same horizontal line, and in that said definition factor is scaled in the horizontal direction.

26. (Original) The system according to claim 24 wherein said given number of aligned macroblocks are aligned on one and the same vertical line, and in that said definition factor is scaled in the vertical direction.

27. (Original) The system according to claim 24, further comprising the operation of storing both a given number of macroblocks aligned on a horizontal line and a given number of macroblocks aligned on a vertical line, so that said definition factor is scaled both in the horizontal direction and in the vertical direction.

28. (Original) The system according to claim 24 wherein said given number of macroblocks comprises at least three macroblocks.

29. (Currently Amended) A computer program product directly loadable in the memory of a digital computer and comprising software code portions for causing a computer to generate an output bitstream from an input bitstream having a first resolution, the output bitstream having a second resolution modified with respect to the first resolution of the input bitstream, by:

distinguishing, in the input bitstream, first portions that substantially do not affect and second portions that substantially do affect variation of the resolution of the output bitstream;

subjecting said second portions of the input bitstream to an inverse-quantization operation to obtain inverse-quantized second portions of the first resolution;

subjecting said inverse-quantized second portions of the first resolution to motion compensation in a DCT domain to obtain motion-compensated second portions of the first resolution;

subjecting the motion-compensated second portions ~~of the input bitstream~~ to a function of modification of the resolution obtained by filtering the motion-compensated second portions in a discrete cosine transform domain to obtain resolution-modified second portions in the second resolution;

~~transferring the second portions to the output bitstream;~~

~~subjecting said second portions of the input bitstream to an inverse-quantization operation and to a motion compensation operation; and~~

~~applying to motion vectors associated with said input bitstream a transformation that correlates the motion vectors to a number of motion vectors associated with at least one of a plurality of macroblocks of said output bitstream, wherein said transformation applied to the motion vectors associated with said input bitstream includes:~~

~~multiplying said motion vectors by respective weighting factors;~~

~~accumulating the results of the above multiplication; and~~

~~dividing the results accumulated by the sum of said weighting factors.~~

30.   (Currently Amended) The computer program product of claim 29, further comprising software code portions for causing the computer to generate the output bitstream by subjecting the resolution-modified second portions ~~that have undergone filtering in the domain of the discrete cosine transform~~ to an inverse discrete cosine transform function to generate decompressed data with modified resolution that are perceptible during generation of the output bitstream with modified resolution.

31.   (Original) The computer program product of claim 29 wherein the filtering the second portions in the domain of the discrete cosine transform is performed with selectively variable coefficients.

32.   (Original) The computer program product of claim 31 wherein the selectively variable coefficients are configured to be selectively variable during generation of the output bitstream with modified resolution.

33.   (Canceled)

34.   (Previously Presented) The computer program product of claim 29, further comprising software code portions for causing the computer to generate the output bitstream by subjecting the second portions of the input bitstream to an inverse VLC function prior to the inverse-quantization operation being preformed.

35.   (Currently Amended) The computer program product of claim 29, further comprising software code portions for causing the computer to generate the output bitstream by storing the resolution-modified second portions of the input bitstream subjected to motion compensation with a resolution corresponding to the modified resolution of the output bitstream.

36.   (Currently Amended) The computer program product of claim 35, further comprising software code portions for causing the computer to generate the output bitstream by:
        carrying out the motion compensation by operating on the second portions of the input bitstream subjected to inverse quantization with a first resolution corresponding to the resolution of the input bitstream;
        subjecting the data that have undergone motion compensation to a first operation of modification of the first resolution into a second resolution corresponding to the resolution of the output bitstream;
        storing the data subjected to motion compensation with the second resolution; and

generating prediction data for the motion compensation starting from the ~~data~~ stored resolution-modified second portions ~~with the second resolution~~ by subjecting the stored ~~data~~ resolution-modified second portions to a second operation of modification of the resolution that brings back the resolution of the stored data from the second resolution to the first resolution.

37.   (Original) The computer program product of claim 36 wherein the second resolution is a resolution lower than the first definition.

38.   (Original) The computer program product of claim 29 wherein the filtering in the domain of the discrete cosine transform includes:

storing a given number of macroblocks aligned on one and the same line; and

multiplying the macroblocks by at least one matrix with a scaled factor of definition.

39.   (Original) The computer program product of claim 38 wherein the given number of aligned macroblocks are aligned on the same horizontal line, and in that the definition factor is scaled in the horizontal direction.

40.   (Original) The computer program product of claim 38 wherein the given number of aligned macroblocks are aligned on the same vertical line, and in that the definition factor is scaled in the vertical direction.

41.   (Previously Presented) The computer program product of claim 38, further comprising software code portions for causing the computer to generate the output bitstream by storing both a given number of macroblocks aligned on a horizontal line and a given number of macroblocks aligned on a vertical line, so that the definition factor is scaled both in the horizontal direction and in the vertical direction.

42.   (Original) The computer program product of claim 38 wherein the given number of macroblocks comprises at least three macroblocks.

43.   (New) The method of claim 1, further comprising:

applying to motion vectors associated with said input bitstream a transformation that correlates the motion vectors to a number of motion vectors associated with at least one of a plurality of macroblocks of said output bitstream, wherein said transformation applied to the motion vectors associated with said input bitstream includes:

multiplying said motion vectors by respective weighting factors;

accumulating the results of the above multiplication; and

dividing the results accumulated by the sum of said weighting factors.

44.   (New) The method of claim 10, wherein the multiplying operation comprises:

multiplying a first subset of macroblocks of said given number of macroblocks by a first matrix with a factor of definition that is reduced in a first direction to obtain a first macroblock having the factor of definition that is reduced in the first direction;

multiplying a second subset of macroblocks of said given number of macroblocks by a second matrix with the factor of definition that is reduced in the first direction to obtain a second macroblock the factor of definition that is reduced in the first direction; and

multiplying the first and second macroblocks by a third matrix with a factor of definition that is reduced in a second direction to obtain a third macroblock.